SANDIA CORPORATION

LAB NEWS

PRIME CONTRACTOR TO THE ATOMIC ENERGY COMMISSION / ALBUQUERQUE, NEW MEXICO / LIVERMORE, CALIFORNIA

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SFC/E7 James S. Hinson

Jim Hinson Earns Right to Wear Paratroopers' Beret

The right to wear the green beret, official headgear of the paratroopers, was given to Security Sergeant James S. Hinson upon completion of jump school at Ft. Benning, Ga.

He attended the school this summer while on regular reserve training. Jim is a SFC/E7 in Company B, Special Forces Group.

There were 287 men from the different branches of service in his class at Ft. Benning. The course lasts three weeks and progresses from training on a 250-ft. free fall tower to five jumps from a plane at an altitude of 1250 ft.

"There were casualties," he said. "On our first jump from a plane, six men broke their legs. However, the school tries to develop complete discipline and mental alertness as safety measures for the students. In addition, 15-ft. static lines attached to the airplane prevent accidents which could be caused by pulling the parachute ripcord too early."

FIRST WOMAN to enter Sandia's Technical Development Program will be Gail Barton (1533), a recent engineering science graduate of Arizona State University, Tempe.

Woman Engineer in Sandia's TDP Class At UNM This Fall

It's a breakthrough for the women!

Sandia's Technical Development Program traditionally has been all male, but the 44 men in the TDP Class of 1966 (which begins study at the University of New Mexico this fall) will have as their classmate pert Gail Barton.

Gail received her BS degree in engineering science from Arizona State University, Tempe, in January. At UNM, she plans to do graduate work in electrical engineering.

Gail worked several years in medical research in California and Colorado. "I was particularly interested in electronic research apparatus and the apparent shortage of medical engineers," she said. Eventually, she combined work with part-time attendance at the University of Colorado. After transfer to Arizona State, her attendance was on both full and part-time bases.

"I lack only three or four courses for an electrical engineering degree, so in changing my major there won't be too much to make up," she said. Gail intends to maintain her interest in medical technology as a sideline or hobby.

At present, she is assigned to Preliminary Systems Design Division 1533. "I chose this area since it is closer to my major and my interests, and is not limited to a specific area," she explained.

Employees in the TDP program work part time at Sandia Laboratory and attend university classes part time.

AEC Seeks Bidders for New $2.25 Million Development Lab

Contractors have been advised that bids will be invited about Aug. 6 for construction at Sandia Laboratory of a three-story development laboratory estimated to cost between $2,250,000 and $2,325,000. Bids are scheduled to be opened Sept. 23 by the Atomic Energy Commission's Albuquerque Operations Office.

The project will provide additional facilities required for Sandia's nuclear weapons research and development program. The building will contain about 76,000 gross sq. ft. and will be some 283 by 84 ft., with a partial basement for mechanical and electrical equipment. A complete air conditioning system will be installed to meet rigid requirements of temperature, humidity control, and low air contamination content necessary in research and development laboratories.

The structure will be designated Bldg. 807 and will join existing Bldg. 806 in Area I at Sandia. It will be of reinforced concrete frame. The first floor will be a concrete slab on grade to permit installation of some equipment, including a 10,000-lb. elevator.

The project is to be completed within 400 days after the contractor receives notice to proceed.

The building will be the third "leg" of a complex composed of Bldgs. 805 and 806. C. M. Morrisett, Design Division 4543, is project engineer.

Sandia Scientists Present Papers at Paris Symposium

J. W. Easley, Director of Radiation Physics 5300, and F. L. Vook, supervisor of Crystal Lattice Defects Division 5311, will present technical papers at the Symposium on Radiation Damage and Semiconductors, part of the International Conference on the Physics of Semiconductors to be held in Paris, July 16-24.

Mr. Easley's paper is entitled "The Semiconductor Device in Radiation Damage Research." Mr. Vook's presentation is "Structural Properties of Defects in Semiconductors." The meeting is sponsored by the UNESCO International Union of Pure and Applied Physics and the Societe Francaise de Physique.

F. M. Smits, manager of Radiation Physics Department 5310, will join the others for discussions on radiation damage in crystalline solids at the Atomic Weapons Research Establishment, Aldermaston, England.

Prior to the meeting in France, Mr. Vook will attend the Symposium on Atomic Collision Cascades to be held July 13-15 at the Atomic Energy Research Establishment at Harwell, England. One of the papers to be presented at this meeting is "Channeling of Ions Through Single-Crystal Silicon Lattice" co-authored by A. R. Sattler (5311) and Geoffrey Dearnaley, who is at Los Alamos Scientific Laboratory on a year's leave from AERE.

Mr. Vook will also visit the Institute of Physics of the University of Rome where research is being conducted in electron microscopy of neutron damaged regions in semiconductors. Mr. Smits will attend discussions at the Technische Hochschule in Munich, Germany, concerning the institute's work in radiation damage.

Patent Granted AEC In Name of Sandia's George Voida

A patent for inspectable soldering flux composition has been assigned to the Atomic Energy Commission in the name of George Voida (1553). The patent is number 3,139,-360.

In many applications where solder is employed, it is absolutely essential to remove all traces of flux from soldered surfaces if subsequent electrical failures are to be prevented. The invention is particularly concerned with a novel soldering composition whose presence is detectable in trace amounts in the presence of ultraviolet light.

The composition includes conventional fluxing agent, solvent, activator, and wetting agent, plus a material having ultraviolet light absorbing qualities. The latter material is thermally stable over the temperature range encountered in soldering; is chemically stable in the presence of the fluxing solvent; becomes and remains uniformally dispersed throughout the soldering flux; and is not deleterious to the basic fluxing action.

HE Blasts Construct Small Experimental Earth Dam

An unusual way to build earth dams using two rows of explosives has been tried in Coyote Canyon Test Field. The two rows of small conventional HE charges were fired simultaneously. The throwout collided in midair and fell back between the rows to form a long pile of compact earth.

L. J. Vortman of Underground Physics Division 5412 is now evaluating the results to determine the effectiveness of the method.

The experiment is an effort to shed light on a question raised by the Australian Atomic Energy Commission at a Plowshare Conference in October of last year. The Plowshare Program investigates the possibilities of using nuclear explosives for peaceful purposes.

At the time of the conference, various discussions were held on building landslide dams using nuclear explosives in mountainous terrain. The Australians, however, are interested in the possibility of using explosives to build dams across wide, shallow valleys.

Mr. Vortman suggested simultaneous detonation of parallel row charges. Results of his experiment in Coyote Canyon will be reported to the Plowshare Program.

A total of five shots has been fired, each consisting of 20 eight-lb. charges buried three ft. deep. Four-ft. spacing was used between the charges, and spacing between the rows was varied in an effort to secure best results.

Leonard Hitchcock of Coyote Canyon Operations Section 7245-4 was Field Test project engineer in charge of placing and firing the explosive charges.

EARTH DAMS—Walter Hyde (7243), left, and L. J. Vortman (5412) recently conducted a series of experiments in connection with investigation of the feasibility of constructing earth dams with explosives. In the background is a miniature earth dam built by simultaneous detonation of two parallel rows of small explosive charges.

Editorial Comment

More on Injuries Away From Work

A golfer friend of the **Lab News** reminds us that there were more than 18,000 disabling accidents of all types on the links during a recent 12-month period. This figure was up 3000 over the previous 12-month period.

He said he didn't want to spoil the sport for many fans who find recreation and rest in playing 18 holes. But he did suggest we call out the fact that there are dangers in playing the game, and that some of the dangers are these:

The National Safety Council says that 10,000 persons were struck by golf balls in the period. Nine per cent of the injuries were caused by swinging clubs. Heat prostration felled 10 per cent of those injured. Golf cart accidents produced another seven per cent. Apparently, there are even reckless drivers on the golf course.

There is danger of being struck by lightning. If you are caught on the golf course in a thunderstorm, the National Safety Council advises you to stay away from isolated trees, wire fences, hilltops and wide-open spaces.

Where should you go? The National Safety Council advises, "Seek shelter, if its available, in dense woods or in a grove of trees, away from the trunks, or in a low spot."

Help for Minute Misers

Ask a fellow if he has a minute to spare. The answer may surprise you. He may say "no." And it's small wonder, for though there are 1440 minutes in a day, they are becoming ever more valuable.

Time represents money. If you earn $6000 a year it comes to about five cents a minute. But even more important than its cash value is its irreplaceability. This means much to the person who is serious about getting a job done.

Just about everybody has his own formula for making the most of time. We all realize that efficiency is merely a matter of common sense.

Compare your formula for saving time with this one—it contains 10 tips for minute misers. But remember, when it comes to saving time, you are on your own. Nobody but you can save time and make it more productive.

1. Take advantage of your "best time." If you are at your best at 6 in the morning, use that hour to tackle the toughest job.

2. Organize the flow of your work, especially repetitive tasks. Find the routine which is easiest for you and permits you to turn out the most work. Following it will pay you well.

3. Good communications can save time. Say exactly what you mean. Write exactly what you mean. Listen to instructions carefully. Doing these things will save a lot of time.

4. Make a list. List all jobs to be done; then, as you finish each task, mark it off the list. This alone will show you how well you spend your time.

5. Stick with what you're doing. Stick with that job until it is done or until you have taken it as far as possible. It's hard to come back to a chore after once leaving it.

6. Don't let the telephone run you. Know what you want to say when you pick up the telephone. Be businesslike, courteous. If someone else answers the telephone in your absence, be sure the gist of all messages is written down.

7. The way someone else does his job may waste your time. If you get reports, you may see a better way of preparing them. Let the report writer know. A production job may affect your efficiency. If you can improve it, you probably will save your time too.

8. Organize your mail. Approach your mail with a system. Sort that which requires attention and take care of it immediately. Other material, such as magazines, circulars, catalogues, set aside to scan when you have a supply and some time.

9. Study the need for better equipment to do your job. Talk it over with the boss. If you can assure him of greater efficiency, the new equipment will save instead of cost.

10. Leave time for thinking. Any job can be improved. Find time in your day for thinking, a time when you turn your thoughts to how to make the most of your job, not only in terms of output, but also in job satisfaction. After all, each of us deserves the most we can get from our minutes. How much we get is pretty well up to us.

Congratulations

Mr. and Mrs. P. J. Konnick (4412), a daughter, Tiffany Anne, June 3.

Mr. and Mrs. W. B. Springer (4413), a daughter, Lori Lynn, June 5.

Mr. and Mrs. E. R. Clark (2111), a son, David Allen, June 6.

Mr. and Mrs. R. C. Henneke (2542), a daughter, Michelle Kim, June 11.

Mr. and Mrs. Gary M. Connell (7424), a son, Michael Thomas, June 13.

Mr. and Mrs. Wade N. Adkins (4412), a daughter, Catherine Ann, June 17.

Mr. and Mrs. D. K. McCarthy (1113), a daughter, Jenny Maureen, June 22.

Mr. and Mrs. William Stephenson (1411), a son, John Alan, June 22.

Mr. and Mrs. J. M. Peek (5152), a daughter, Cassandra Lynn, June 23.

Mr. and Mrs. J. A. Chavez (4631), a daughter, Kathryn Janet, June 17.

Mr. and Mrs. Dick Rael (2625), a son, John David, June 16.

Mr. and Mrs. J. Reed Holland (5135), a daughter, Melissa Kathleen, June 3.

World's Fair 'Atomsville' Exhibit Highlights Basic Atomic Science

An "atomic playground" exclusively for children is very popular at the New York World's Fair.

Designed to entertain as well as instruct youngsters, Atomsville U.S.A. is part of the Atomic Energy Commission's exhibit in the Hall of Science. Parents may watch their children through one-way mirrors and on closed-circuit television, or they may browse through the nearby second section of the AEC exhibit—Radiation and Man.

Both Atomsville U.S.A. and Radiation and Man were designed, fabricated, and will be operated for the Commission by the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.

Atomsville, with entrance and exit only five ft. high, contains a maze of equipment, including a pinball machine which shoots "neutrons" at "uranium atoms" and a simulated nuclear reactor that talks to the youngsters as they operate it.

The Radiation and Man portion of the exhibit highlights the basic science of atomic energy, with emphasis on the effects of radiation on living matter.

In Atomsville, the young visitor is confronted with questions about atomic energy, and obtains the answers by pushing buttons, moving levers, and otherwise activating the colorful displays. The questions follow the story of atomic energy from uranium ore to various applications of nuclear energy in medicine, agriculture, and industry.

Radiation and Man carries the visitor from familiar forms of radiation—such as visible light and heat—across the electromagnetic spectrum to radio waves and gamma rays. It also introduces cosmic rays, alpha and beta particles, and neutrons.

A short motion picture, "Tomorrow's Power Today," shows nuclear power plants in operation in various parts of the United States.

The Fair exhibits are part of the AEC's extensive program of providing information on nuclear energy to people everywhere. Objective of this program is to improve public knowledge of atomic energy, its principles, its applications, and its potential.

HANDLING RADIOACTIVE MATERIALS — Atomsville U.S.A. is fun for children. At the same time, it is an educational experience, and youngsters can learn some basic facts about nuclear energy. The exhibit was built and is operated for the AEC by the Oak Ridge Institute of Nuclear Studies.

Colloquium Secretary Finds Tasks Varied, Interesting

Doris Price (5152) has been named secretary of the Sandia Laboratory Research Colloquium Committee. She succeeds Diane Martin (5132), who had held the position for three years.

Duties of the colloquium secretary are varied. The official invitation to a prospective speaker is sent by one of the committee members, and the speaker's host is frequently a former student or associate. However, general coordination is the secretary's job—such things as helping arrange for a mutually-convenient date for the talk, obtaining an abstract for use in a program announcement, handling hotel reservations (if desired), and arranging for a slide projector or motion picture equipment. "I was initiated into my equipment responsibilities on my first colloquium. The public address system didn't work," Mrs. Price recalled.

She also receives frequent inquiries about the LASL or Air Force Weapons Laboratory colloquia.

A small number of the colloquia each year are of classified nature. The colloquium secretary is responsible for maintaining the access list for these and each organization is limited to a pre-determined number of tickets.

The general purpose of the Research Colloquium is to keep Sandia staff members informed of recent advances and interesting topics in the basic and applied sciences, and of theories, problems, and policies of national defense and nuclear energy pertinent to the research and development programs of Sandia Corporation.

In carrying out this purpose, programs include those of broad scientific interest, some of specialized interest, and at least four a year by Sandians.

Sandia speakers this year include D. R. Morrison (5426), who spoke Apr. 8 on "Automata"; F. L. Vook (5311), who discussed "Defects in Irradiated Semiconductors"; on June 24; A. T. Fromhold (5151), who will speak Sept. 30 on "Surface Oxidation"; and G. W. McClure (5152), whose Nov. 4 discussions will be on "Binary Atomic Collisions."

"Outside" speakers scheduled for the near future include: July 29, W. G. Chace, Air Force Cambridge Research Center, Bedford, Mass., "Exploding Wires"; Aug. 5, Gerald H. Tenney, LASL, "The Role of Non-Destructive Testing in the Rover Program"; Aug. 20, Professor George Porter, University of Sheffield, England, "Flash Photolysis."

The Research Colloquium Committee members are Crawford MacCallum (5411), Richard T. Meyer (5153), J. D. Hankins (5422), W. D. Law (5131), and G. W. Arnold (5311).

Requests for information about forthcoming speakers and tickets should be referred to Mrs. Price at tel. 264-7337.

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PRECISE ALIGNMENT of sample material in a Debye-Scherrer camera is necessary to make accurate diffraction patterns. J. R. Woodworth (1122) makes adjustments to insure that X-ray beam will strike sample material mounted at center of Debye-Scherrer camera.

X-Rays Used To Tell Composition of Components and Materials

The personnel of Analytical Methods Section II, 1114-2, are using a number of X-ray analysis techniques to determine the composition of compounds and materials. They're also involved in research on the basic structure of crystals.

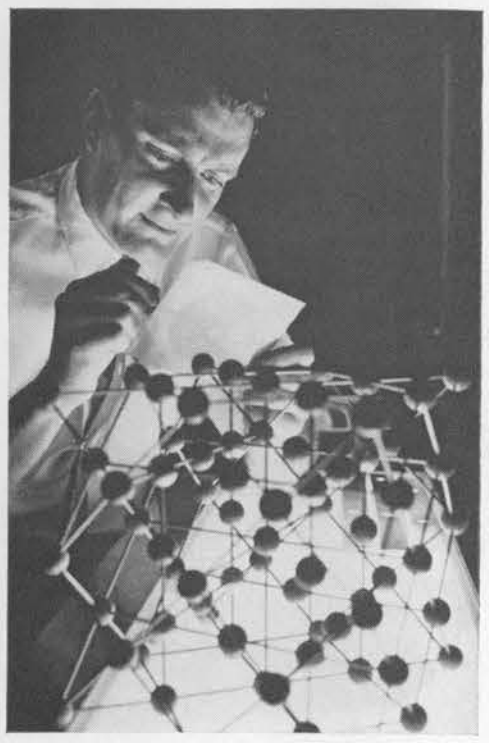
"While the scientific use of X-rays is comparatively new," E. J. Graeber of the section explains, "the techniques we're using are based on discoveries made at the turn of this century."

One type of X-ray analysis is based upon the fact that, if an element is bombarded with X-rays of high enough energy, the element emits a characteristic line spectrum called X-ray fluorescence. "This fact provides us with a basis for a method of chemical analysis," Ed explains. If the various elements in the sample to be analyzed are made to emit their characteristic (fixed) wave-lengths by X-ray bombardment, then these elements may be identified by allowing the emitted radiation to be diffracted from lattice planes of known spacing in a single crystal. "With this X-ray spectrometer, we can perform nondestructive qualitative analyses, and also determine percentages of various elements in a test sample without chemically altering the sample material," Ed continues.

A second X-ray instrument uses a Debye-Scherrer Camera, a device which produces a photographic record from a finely-ground powder sample which is subjected to the monochromatic X-ray beam. Since all crystalline solids have a unique internal arrangement, they will diffract X-rays into a unique and characteristic powder pattern. These line patterns, recorded on film strip, are compared with an index of line patterns produced from known elements and compounds. "This 'fingerprint' method enables us to determine non-destructively phases and compounds present in an unknown test material," Ed points out.

A third X-ray diffraction technique used by the section utilizes a Buerger Precession Camera which is a device that precesses a mounted single crystal in somewhat the same way that a child's top slowly rotates around a vertical axis (the point) while spinning on its own axis. A photographic film is placed normal to the precession axis (the flat portion of the child's top) and a monochromatic X-ray beam is passed through the test crystal. Photographic plates obtained in this way show an undistorted network of diffraction spots which relate a reciprocal lattice to the real crystallographic lattice of the crystal.

This process enables the researcher to determine a system of coordinates to describe the geometry of the lattice. Since fundamental three-dimensional "unit cells" make up this lattice, it's possible to establish the size and shape of these basic building blocks of nature. "Once the geometry of this unit cell is established," Ed concludes, "and the intensity is measured for the three-dimensional array of diffraction spots on the film, it's possible, with computer-aided transformation techniques, for us to determine the relative positions of the molecules or atoms within the crystal lattice. Information about these positions can then be used to establish the mean thermal vibrations of atoms (a function of the temperature of the crystal), their bonding energy (the energy holding them together), and the overall configuration of the atomic environment."



MOLECULAR MODELS such as the one in the foreground are prepared by Analytical Section II, 1122-2, using information derived from X-ray crystal studies. Ed Graeber of the Section examines radiograph of crystal, made with the Buerger Precession Camera.

Employees Prepare for 1964's Sandia Lab ECP Drive

For the past several months, a group of dedicated people have been meeting at Sandia, making plans for the 1964 Employees' Contribution Plan fund drive, coming up this fall. The ECP Committee begins preparations for each annual drive early; there's a lot that must be done.

In an important sense, their activities represent a considerable amount of cooperation on the part of all of the employees at Sandia Laboratory. Every year, fund drive activities begin anew; fresh ideas are fed into plans for the drive; hope for a successful drive is revitalized. Year after year, the cycle of activities begins again, and the activities themselves now add up to an interesting history of ECP.

Support of the Employees' Contribution Plan has been a challenge that Sandians have continued to meet. The ECP is a descendent of an in-plant solicitation program that began shortly after the Corporation was created. In 1949, only one in-plant drive, for the Albuquerque Community Chest, was conducted. Placing of coin boxes for certain charities in the work areas was permitted, but the result of such passive solicitation was disappointing.

As a result, and because such solicitation was necessarily done by Sandia employees, the need for a federated giving plan grew. The need was met by the success of in-plant solicitation for the Albuquerque Community Chest.

Between 1950-54, Sandia's policy on charitable contributions was examined. Special attention was given to the possibility of a federated plan. Several informed studies of other in-plant solicitation programs were made, and, in 1957, an employee-managed plan was chosen. In such a plan, an employees' committee (the ECP committee) serves as an administrative body, while management provides facilities and services required to collect and dispense funds. In Sandia's plan, employees who participate at work are not expected to contribute at home.

Today, the ECP committee consists of a group of union-appointed and management-appointed employee members. Yearly, the committee determines and announces in advance of the membership drive the names and percentage allocations of agencies to share in the fund for the coming year.

Since 1957, the Employees' Contribution Plan has made solicitation easier, not only for Sandia employees, but also for Sandia Corporation, and for the agencies who receive funds under the plan. This year, continued employee support of the plan has made it possible for the ECP committee to plan a simpler, less time-consuming, less expensive fund drive. Person-to-person solicitation will be discontinued. But continued success of the plan depends on the continued support by Sandia Laboratory employees.

Scouters Will Escort New Mexico Boys to National Jamboree

Don Brooks (2331), Bill Caskey (1513), and Walt Scott (4431) will accompany 111 Boy Scouts to the National Jamboree in Valley Forge, Pa., July 17-23. The trip will include scouting activities as well as attendance at the New York World's Fair, and tours of Washington, D.C. and Philadelphia.

The National Boy Scout Jamboree is held about every four years and attracts as many as 54,000 scouts from all parts of the world. Don Brooks, Contingent Leader for the Kit Carson Council participation, attended the last national jamboree, held in Colorado in 1960.

"It's a great experience for Scouts," Don says, "and adult leaders enjoy it too. We planned this 17-day trip to emphasize the national American heritage, continuing the theme of the Jamboree."

In Washington, D.C., the Kit Carson Scouts will visit the Smithsonian Institution, tour the Capitol, be guests of Senator Clinton P. Anderson for a luncheon in the new Senate office building, and visit Mt. Vernon.

Independence Hall and the Liberty Bell are on the agenda for the visit to Philadelphia.

Enroute, the Scouts will stay overnight at various university or college facilities and at an Air Force base.

Both Bill Caskey and Walt Scott are Scoutmasters and will be in charge of their troops. At the Jamboree, Don will be responsible for one section of the National Scout "Skillorama," where scouts demonstrate troop skills. Dick Brian (2633) and Ernie Bolton (4332) served on the Jamboree Planning Committee, which spent more than a year in making arrangements for the trip.

PRACTICE SESSIONS for 111 scouts prior to attending the National Jamboree was conducted last week by the Kit Carson Council. Adult leaders who will accompany the scouts to Valley Forge, Pa., include Bill Caskey (1513), standing center; Walt Scott (4431), second from right; and Don Brooks (2331), right, chairman of the Jamboree Committee.

First Sandia Lab VE 'Short Shop' Presented by 2563

The first orientation workshop in the Value Engineering Education Program (VEEP) has been held at Sandia Laboratory. The purpose of the "Short Shop" is to acquaint management personnel, at Division level and above, with the concepts and techniques of the Value Engineering process carried on in the 44-hour program.

The lecture and workshop lasts between three and four hours and is conducted by members of Section 2563-1, Cost Reduction and Value Engineering. Material for the first session was presented by Jack Hueter, Dick Phillips, and Ken Sarason. The 50 division and department heads in attendance represented nine different general organizations.

"This was the first contact many of the supervisors had with Value Engineering," Mr. Hueter said, "and answered many questions regarding the program. Support and cooperation of these management levels is extremely important to the continued success of the Sandia cost awareness effort. We are very pleased with the interest and enthusiasm exhibited by the attendees at this first session."

It is planned to continue the "Short Shop" throughout the summer and early fall.

SHORT SHOP in Value Engineering held at Sandia July 9 brought together 49 division and department heads for 3½ hours of training in VE techniques. J. M. Hueter (2563), above, introduced Value Engineering at the session. Others making presentations included Elmer Devor, Dick Phillips, and Ken Sarason (all of Division 2563).

Take Note . . .

Master of ceremonies for the next meeting of the "Free Lance Orators" on July 23 will be J. H. Brooks (4543). Featured speaker will be R. K. Pace (4211) whose topic will be "Building." The group meets every Thursday at 12:10 p.m. in Rm. 125, Bldg. 836. Anyone interested in public speaking is invited.

On July 30, J. H. Brooks will discuss "Better Listening," and MC will be G. B. Roberts (4422).

* * *

Ann Michele (4500) and Pat Anderson (7241) were trophy winners at the Socorro Golf Tourney, June 27, sponsored by the Sandia Lab Women's Golf Association. Ann took low gross honors, and Pat had low net.

A prize for fewest putts was won by Dorothy Hummer (4335). Rose Hainlen (4152) had the fewest number of strokes from tee to green.

The course is on the NMIM&T campus.

Office of Naval Research Will Sponsor Seminar in Albuquerque

Several Sandians will participate in the Research Reserve Applied Research Seminar to be held in Albuquerque, Aug. 9-22. The seminar is sponsored by the Office of Naval Research, Washington, D.C., and is managed by Naval Reserve Research Co. 8-7 of Albuquerque and Naval Reserve Research Co. 8-9 of Los Alamos.

Each year, the Office of Naval Research sponsors Research Seminars for the two-week active training period of Naval Reserve officers. Participants include Air Force, Army, and Navy officers from throughout the United States. Approximately 80 officers are expected to attend this year's seminar at Albuquerque.

"New Mexico offers excellent facilities for such a program," C. J. Mauck (7214), Lt., USNR, commanding officer of NRR 8-7, said. "The military activities in the state include research, development, testing, and operations activities which require extensive facilities, many of which are unique in themselves. The manpower required to carry on these activities represents a concentrated pool of highly skilled and professional personnel."

Approximately half of the seminar schedule will be lectures and half laboratory-facility tours. To take advantage of the extensive nuclear activities in the area, seminar attendees will devote two days to nuclear weapons orientation. Since some of the lectures will be classified, special security clearance requirements will be met by the attendees.

Speakers at seminar sessions will include Governor Jack M. Campbell, "Welcome to New Mexico," L. P. Gise, Manager of the AEC Albuquerque Operations Office, "Albuquerque AEC Operations," RADM J. K. Laydon, Chief of the Office of Naval Research; and Capt. D. J. Mooney, Jr., assistant to RADM Laydon. Governor Campbell has proclaimed the week of Aug. 9-15 as Naval Research Reserve Week in New Mexico.

Seminar speakers from Sandia and their topics will include: S. P. Schwartz, President of Sandia Corporation, "Sandia Laboratory, Its Mission"; R. W. Henderson, Vice President, Weapon Programs 100, "Early Experiences in the Manhattan Engineer District"; R. S. Claassen, Director of Physical Research 5100, "Extreme Physics"; T. B. Cook, Director of Nuclear Burst Physics and Mathematical Research 5400, "Modern Weapons Effects."

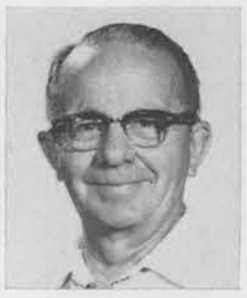
J. W. Easley, Director of Radiation Physics 5300, "Tour of Area V, Sandia Corporation"; W. A. Gardner, Director of Environmental Testing 7300, "Tour of Area III, Sandia Corporation"; V. E. Blake, Jr., manager of Aerospace Nuclear Safety Department 7410, "Aerospace Nuclear Safety."

A. Y. Pope, manager of Aero-and Thermodynamics Department 7420, "Project REB"; J. H. Scott, manager of Space Projects Department 7430, "Vela Programs"; and J. D. Shreve, supervisor of Aerospace Physics Division 5414, "Probing Aerospace, How and Why."

Chairman of the seminar is CDR Nelson Spurling, USNR, Chief of the Progress Division for the Deputy for Test and Engineering at KAFB. C. J. Mauck (7214) will chair seminar sessions on Aug. 10 and 17; and C. B. Rogers (7622), LCDR, USNR, will chair a session on Aug. 12.

Participants in the seminar will tour Sandia Laboratory facilities in Areas III and V, the Air Force Weapons Laboratory, the Air Force Shock Tube Facility, the Lovelace Foundation for Medical Education and Research, and Holloman AFB. During a visit to Los Alamos Scientific Laboratory on Aug. 18, they will hear presentations on "The Rover Program," "Weapons Testing," and "Physics at Los Alamos," made by R. W. Spence, Alvin C. Graves, and R. Taschek of LASL.

Retiring . . .



Raymond K. Allen will retire the end of July after more than 18 years at Sandia. He has been an order analyst the entire time and is presently assigned to Engineering and Research Support Division I, 2641.

Mr. and Mrs. Allen and their daughter live at 9516 Snow Heights Blvd. NE.

Since coming to New Mexico, Mr. Allen has been interested in rock-hounding. He also enjoys cutting and polishing the stones, and making jewelry from them.

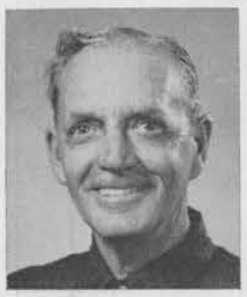
The Allens hope to rockhound in Oregon, Washington, and Canada this summer.

* * * *

Retiring at the end of this month will be Mrs. Bertha Merrill, who was hired at Sandia Laboratory nearly 15 years ago.

She has worked most of the time in test data reduction and mathematical services organizations. Mrs. Merrill was promoted to section supervisor in February 1955 and was in charge of what is now Data I Section 7241-1 when she went on leave of absence in April 1963. Her husband is Jack Merrill (7434).

* * * *



Tomie D. Hill, a Sandia Corporation employee for the past 16 years, will retire July 31. He has been with Labor Support and Grounds Maintenance Division 4575 for five years, and was previously "lead man" for special handlers group.

Although a native of Oklahoma, Mr. Hill intends to remain here after his retirement. He and his wife live at 4100 Grande Dr. NW.

In the fall, they plan to visit three of their children in Texas, California, and Oregon. One lives in Albuquerque.

Mr. Hill will keep busy following his hobby of gardening and raising fruit trees.

Roy K. Smeltzer will retire at the end of July after almost 15 years with Sandia Corporation. Roy joined Sandia at Albuquerque in October 1949, and was a section supervisor in weapon records control and information for over ten years. Since transferring to Livermore Laboratory in July 1962, he has been in Automated Data Control Section 8161-1.

Roy and his wife, Virginia (8116), plan to remain in Livermore for the time being. Their son is employed at NASA at Ames Laboratory near Sunnyvale.

While Roy has a number of projects planned in and around the house, his future plans also include travel through Southern California and Hawaii visiting friends.

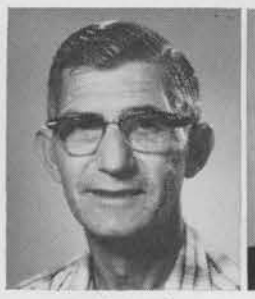
Safety Equipment Memo

Clear shields, such as this one modeled by Trinnie Romero (2624), are used in addition to safely glasses to protect the face against splashed chemicals, flying bits of metal, or splinters of wood. Many organizations keep them on hand, but the face shields are also available at the Safety Equipment Room, Bldg. 857.

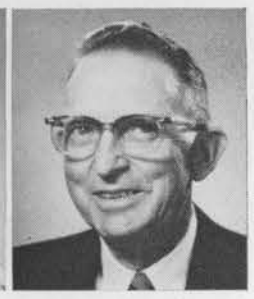
Service Awards

15 Year Pins

June J. Moore
3421
July 18, 1949



David C. Hake
4512
July 18, 1949

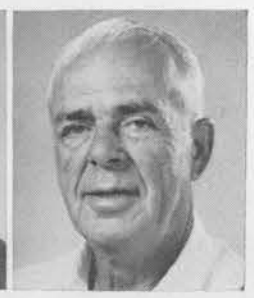


M. L. Shoemaker
1554
July 19, 1949

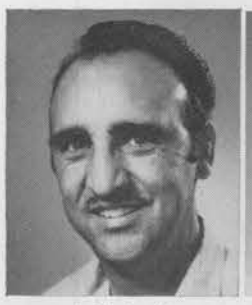
C. D. Babcock
3463
July 19, 1949

Jean M. Gillette
3132
July 20, 1949

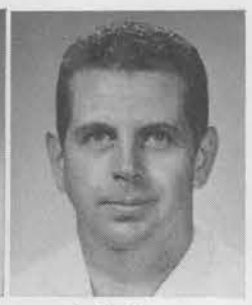
W. E. McDonald
1321
July 25, 1949



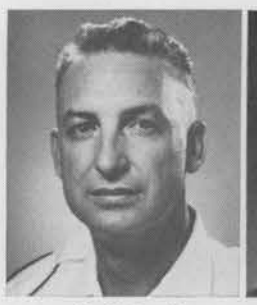
C. J. Northrup
7213
July 25, 1949



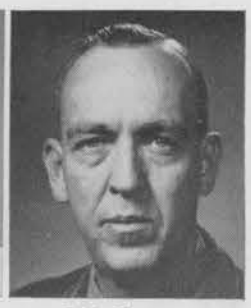
L. E. Armijo
4234
July 25, 1949



L. H. Minnear
7222
July 26, 1949



M. N. Orrell
3242
July 27, 1949



E. R. Thompson
1314
July 28, 1949

10 Year Pins

July 19 - 31

Stanley D. Spray 1533, Michael P. Ryanczak 4511, C. S. Williams, Jr. 1442, E. Alice Preist 4431, James L. Dossey 9101, Robert W. Gray 1411, M. J. McLaughlin, Jr. 2122.

Melton B. Rushing 4422, Johnny R. Chavez 4573, Russell W. Frame 7246, Warren C. Schaefer 2642, Jean P. Naughton 3421, and Doris L. Willard 4152.

SCLL Completes Neutron Generator Installation

The complex array of electronics controlling the Livermore Laboratory Neutron Generator Facility resembles the interior of a launch-pad control center at Cape Kennedy. Computers and digital counters, now familiar to so many, lend an aura of countdown suspense within the windowless enclosure.

But there, the analogy ends. In the control center for the neutron generator, numbers "count up" rather than down as information on periods of exposure, half-life, and other quantities is tabulated

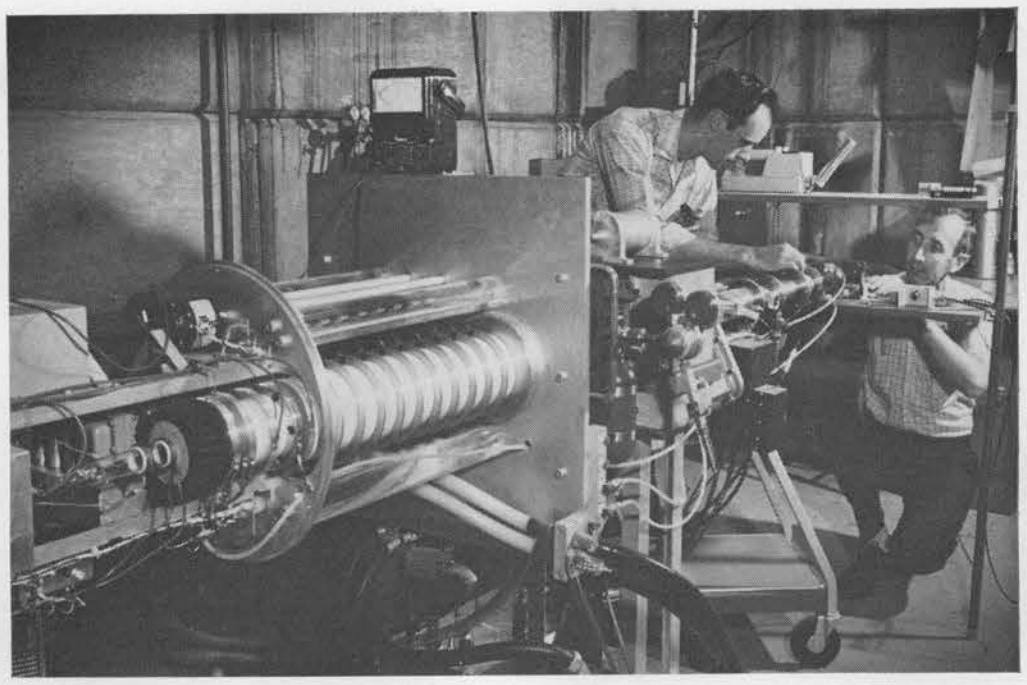
The neutron generator produces high-current beams of protons or deuterons, and can easily be adapted to accelerate electrons or heavier charged particles. Although it is primarily intended as a source of neutrons, it can be used to produce x-rays, high-energy protons, and gamma rays by selection of appropriate bombarding particles and target material.

Operation of the generator includes the production, extraction, and acceleration of ions. After acceleration, the ions are allowed to fall on a suitable target material to produce neutrons, x-rays, or other nuclear particles. The neutron source operates at 150,000 volts and is capable of producing a yield of 14 mev (million electron volts) neutrons in excess of 10^{11} neutrons per second.

The building housing the neutron generator may truly be called a blockhouse because of the 5.5-ton concrete blocks that are the basic construction feature. Fifty-two of these interlocking blocks are held together by their own weight and provide ample protection for personnel in and around the facility.

The facility has been functioning since mid-February, operated by project engineer Bill Long (8122). Detailed evaluations required for each series of tests have kept Bill and technician Don Swanson (8122) working continuously to provide information to various development groups.

The neutron generator is used principally for testing and improving neutron detectors for use in telemetry systems. Other applications include activation analysis (materials analysis according to decay products), shielding studies, and low-level radiation damage studies.



A SAMPLE NEUTRON DETECTOR is loaded by Bill Long and Don Swanson (both 8122) after making adjustments on the 14-mev neutron generator.

TWO 4-FT. CONCRETE WALLS separate the control room from the neutron generator. Bill Long (8122) checks calibration of the control console used to operate the generator. Whenever the generator is activated, a radiation dosimeter maintains a cumulative record of exposure within the control room.

R. W. Henderson Speaks To Professional Engineers

R. W. Henderson, Vice President, Weapon Programs, will address the Professional Engineers in Industry, a functional section of the Albuquerque Chapter of NMSPE. The dinner meeting will be held at the Sandia Base Officers Club on Monday evening, July 20. Mr. Henderson's talk is entitled, "Engineers and Management Look at Each Other."

For additional information and reservations, call John Coleman (2442), tel. 264-4148; or Harry Wheeler (7322), tel. 264-2463.

Welcome Newcomers

June 29 - July 10

Albuquerque
Charles F. Cloyes 3413
Olga L. Hellwig 3126
Patricia A. Howard 7241
Wilber L. Kahn 2121
Lynn E. Lucas 3126
Margaret E. Marquez 3126
Delberta S. McKinney 3126
Frances E. Mortensen 3427
*Katherine W. Pepper 3126
Helen L. Phillips 3126
*Carol S. Pitts 3126
Thomas Richardson 4574
Mary H. Romero 3126
Mary Ann Saavedra 3126
Filimon Tenoria 3413

Connecticut
Richard J. Miller, Bridgeport 1333

Georgia
Raymond W. Jones, Jesup 2543
Eric W. Reece, Atlanta 7422

Iowa
David R. Browning, Waterloo 4332

Kansas
Gary A. Kinemond, Bushton 9100

Massachusetts
Arthur W. Mullendore, Cambridge 1122
John R. Freeman, Cambridge 2421

Michigan
Richard W. Beegle, Muskegon 7332
Ned R. Keltner, East Lansing 7323

Minnesota
Hans M. Aus, Minneapolis 2344

New York
Anthony S. Veneruso, Brooklyn 7253

North Dakota
Robert S. Solberg, Willow City 2544

Ohio
Gary J. Scrivner, Hamilton 1541

Oregon
Richard E. Gobeli, Klamath Falls 1433

Pennsylvania
Ronny J. Kershner, Tamaqua 4413
Vincent L. Mautino, Monogahela 4411
Howard S. Seltzer, Yeadon 4411
Charles B. Watkins, Jr., Pittsburg 7253
Robert J. Yuhas, Hazelton 4411

Washington
*John L. Bjorkstam, Seattle 5151

Temporary Summer Hire
Douglas S. Kerr 5426

*Denotes rehired

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CLASSIFIED ADVERTISING
Deadline: Friday noon prior to week of publication unless changed by holiday.

RULES
1. **Limit: 20 words**
2. **One ad per issue per person**
3. **Must be submitted in writing**
4. **Use home telephone numbers**
5. **For Sandia Corporation and AEC employees only**
6. **No commercial ads, please**
7. **Include name and organization**
8. **Housing listed here for rent or sale is available for occupancy without regard to race, creed, color, or national origin.**

FOR SALE

'60 CHEVROLET PICKUP, 32,000 miles, wide short bed, 3-speed transmission, R&H, new tires, $945. Holdridge, 298-4649 after 5.

'53 CHEV. 4-dr., R&H, PG, $100; 26" boy's bicycle, $20; padded platform for '56 Chev., $10. Vath, 299-1448.

'60 CHEVROLET STATION WAGON, $1050 or will trade for compact car. Huff, 256-9426.

BRIGGS AND STRATTON 2HP 4-cycle engine, ideal for lawnmowers and Go-Carts, completely overhauled, $15. Tassia, 345 Texas, NE.

ANTIQUE CLOCK, $30; steel door, 36" x 7' w/ frame consider trade for roll-top desk. Welker, 299-1179.

3-BDR., 1¾ bath, fireplace, drapes, sprinklers front and back, walled yard, approx. 1400 sq. ft. Miller, 298-2850 after 5.

3-BDR., 1¾ bath, den w/fireplace, 1475 sq. ft. living area, walled back, fenced front, sprinklers, landscaping, FHA or GI. Post, 298-0481.

AIRPLANE, Taylorcraft BC12-D, 1475TT, 380 SMOH, 80HP engine, metal prop, ROC, T&B, $1100. Risse, 299-5002 or Lochner, 265-4037.

3-BDR. HOFFMAN, 1½ bath, corner lot, carpeted, walled, double garage, wine shelter, fruit trees, less than FHA, $450 down. Brumley, AX 9-1809.

'57 MERCURY V-8 4-dr., HT, $375. Ward, 242-2045.

ROBERSON 3-bdr. and paneled den w/fireplace, 1¾ bath, double garage, sprinklers, utility room and pantry, all electric built-ins, $800 down FHA. Hare, 299-7137.

SEVERAL DRESSERS, chests, desk, and chair, $5-15; Hi-fi AM/FM tuner, cost $65, sell for $25. Vivian, 299-1785.

GE MOBILE MAID portable dishwasher; Hotpoint electric range, make offer. Mills, 299-2130.

DOG HOUSE for small to medium size dog; also a dog chain. Henneke, 298-4232.

THREE 8" trailer wheels for four-lug hub; one good tire. Harrison, 299-7928.

CALIFORNIA IVY CHINA, individual pieces. Carter, 344-6563.

'59 PLY. STA. WGN., 6-pass, a/c, PS, $1100. Lewis, 255-3316 after 5:30.

TWIN BED, complete; bottle sterilizer; china closet, mahogany; 300-sq.-ft. room air conditioner. Tuthill, 298-0265.

'58 WHITE FORD convertible, PS, PB, R&H, new tires, transmission, shocks and mufflers, 352 cu. in. engine, 4-barrel cruise-a-matic. Lloyd, 298-2436.

MEYER Z52 ZOYSIA sod @ 3½c per plug. Zackman, 299-6871.

AMBASSADOR OLDS TRUMPET, $65; saxaphone, $20. Eaton, 298-3865.

MOUNTAIN HOME, Sandia Park, insulated, 4 bdrs. fireplace, heated garage workshop, $18,900, assume mortgage at $100/mo. Coalson, 298-8074.

WEIMARANER PUPPY, 8 months, light-silver-brown, pedigreed from champion stock, loves children, to good home only. Seligman, 298-1993.

'62 GALAXIE 500 XL FORD, 22,000 miles; Kay electric guitar and amplifier, dual pick-ups. Rea, 299-9315.

'59 CORVETTE, 2 tops, 4-sp, Hedmens, scatter-shield, 11" clutch, slicks, 64'-327, 60 fuel injection, pleated seats, make offer over $1900. Bolles, 298-0425.

HQ110 RECEIVER, $125; 3" scope, $15; two 3.5 Mc transceivers, BC645, other radio gear. Sell or swap. Baker, 268-8490.

CLARINET, Bundy, $75, used 1 yr., original cost, $130; utility trailer, one wheel, $15. Meyer, 344-3094.

GERMAN SHEPHERD PUP, male, AKC registered six months old, choice of litter, $35. Boling, 282-3256.

RCBS .270 Winchester reloading dies, $6.50. Cranston, 256-1662.

CAMPER, Sport Liner DeLuxe, aluminum, insulated, w/2 cots. Padilla, 2530 La Veta Dr. NE, 268-1410.

3 SOLID MAPLE TABLES w/1¼" plate glass tops, $45; Mercury outboard 5½ HP motor. Newman, 256-3295.

NORGE refrigerator-freezer; Eagle gas range; RCA Whirlpool washer, dryer, dishwasher; girl's 26" bicycle; 17" Motorola table-model TV; power lawnmower. Harfield, 268-2062.

'59 FORD GALAXIE 4-dr., R&H, PB, PS, AT, less than blue book at $695; will consider trade. Morgan, 256-7994.

'62 IMPALA CONVERTIBLE, $1950; den furniture. Chandler, 298-5069.

COMPLETE SET Book of Knowledge encyclopedia, 32 volumes, $25. Luna, AX 9-2488.

SW VALLEY, 3-bdr, den, 26' LR w/vigas, 2 firplaces, carpeted, 1¾ bath, double carport, w/storage, 2000 ft., $800 down to new FHA, Roth, CH 3-7049.

DOBERMAN PUPPIES, registered, good breeding, $125 before ear cropping, $175 after ear cropping. Foster, 282-3975.

REGISTERED GERMAN SHEPHERD pups from champion lines, male $50, female, $35. Carpenter, AX 9-3519.

14' ALUMINUM RUNABOUT w/35HP Evinrude Lark, Magnolia Craft trailer, jackets, cushions, skis, ropes, spare prop and tire, wheel. Glover, 298-7302.

OPEN COIL SPRING, Ward's best quality, double bed size, $10. Stark, 299-5953.

ROBERSON 3-bdr., 1¾ bath, dining, utility rooms, fireplace, leaving within week, sell below appraisal of $15,600. Mitchell, 298-0257.

LADDER, extension, wood, 40' industrial type, $30. Wilson, 299-1721.

UPRIGHT PIANO, completely reconditioned by Reidling Music Co., $285. Elbert, 9006 Cordova NE, 298-2204.

TROMBONE and case (beginners), $25; lawn glider w/cushions, $15; isolation transformer Stancon 250 watt, $15; variable transformer, 7.5A, $10. Scranton, 299-4902.

'58 RAMBLER st. wg. OD, a/c, sell or trade for 4-wheel drive pick-up. Smith, 3921 Clinton SW, 877-9133.

PUREBRED DACHSHUND PUPPIES, $25. Wistor, 255-7969.

CLARINET, 3 yrs. old, Penzell wooden w/leather carrying case, appraised at $90. Corlis, 298-7386.

'62 DAIMLER SPORTS Convertible w/HT. Ramsey, 268-4844.

BUTTON-HOLE attachment for Ward's sewing machine, $5; 14' chest-type freezer, $100; six metal folding chairs, $10. Candelaria, 344-9028.

MOVIE CAMERA, 8mm turret, built-in exposure meter, filters, $30; .22 rifle, bolt action Winchester, clip, $15. Schowers, 255-9279.

SANDIA KNOLLS LOT 115, wooded, water, power, good roads, $1500, terms. Nogle, 299-3863.

BOWLING BALL, Lady Brunswick, pink and gray, $15. Romero, 344-0302.

GOLF CLUBS, 4 Wilson staff woods, 10 Haig ultra irons, $160. Bland, 268-4913.

AUTO AIR CONDITIONER, 1 yr. old, $150. Mavis, 299-6091.

TYPEWRITER, standard Underwood, $20; 5 volumes, leather-bound classics, .50 each; children's records, .35 each; Bissell shampoo master, $5. Costello, 256-9702.

MAPLE ROCKING CHAIR; maple davenport, makes into ¾ bed; modern red davenport; $70 or will sell separately. Clark, 298-2340.

'61 THUNDERBIRD CONVERTIBLE, a/c, PS, PB, PW, PT, swing-away steering wheel, etc., $200 below NADA. Moffat, 299-9024.

BLOND BALDWIN ACROSONIC piano, $550. Michaels AL 6-3655 after 6.

MINIATURE POODLE PUPPIES, 7 wks. old, AKC, champion pedigree. Tilley, 299-0762.

FRIGIDARE ELECTRIC STOVE, $75. Purdue, AL 6-0802.

COMPLETE HOUSEHOLD FURNISHINGS, best offer, separate or complete. Johnson, AL 5-0262.

'62 FORD GALAXIE, 4-dr., V-8, OD, R&H, white over red, sell or trade for pickup w/wo camper. Henry, 255-2536.

WORLD'S FAIR ADMISSION TICKETS, regular $2 each, 3 for $5. Fisher, AX 8-0526.

'51 PLYMOUTH 4-dr., sedan, $125; Heathkit Q multiplier, $5; wading pool, $5. Reinman, 246-9737.

PUMP, centrifugal, ½HP, electric, high capacity, $25. Muench, 264-5137.

'59 SUPER CUSHMAN SCOOTER, $75. Monroe, 9722 Salem NE, 299-3041.

WEAVER B-4 scope and mount, $5; TR-3 side-curtains, $15; nitromethane, $7/gal,; model airplane engines, parts, accessories and magazines. Svensson, 344-7700.

ROBERSON 3-bdr., 1¾ baths, kitchen-family rm., pitched roof, hw/floors, attached garage, FA/heat, a/c, walls, sprinklers, vacant, $17,200, terms. Murphy, 256-1130.

NORTHWEST, Pat Hurley Park area, 3-bdr., den built-in kitchen, dishwasher, carpeting, double garage, fireplace, a/c, $1200 below FHA. Johnson, 242-8758.

BICYCLE, men's 26", 3-speed English, saddle bags, generator, light, hand brakes, $18. Write to Dolphin, P. O. Box 8564.

41" GAS RANGE, 4 burners, griddle, $55. Tjeltweed, 299-0032.

3-BDR. BRICK, 10 x 10 utility room, draperies and carpeting throughout, fireplace, all electric kitchen, 1¾ baths, double garage, a/c, sprinklers. Seay, 268-9124.

GOOD used metal sink, gas stove, refrigerator. McReynolds, AL 5-2615 after 5.

'60 CUSHMAN MOTOR SCOOTER, Eagle. Alexander, 344-1419.

'60 CHEVROLET IMPALA Sport Coupe, automatic transmission, PS, 348 engine, $1275. Johnson, 268-6058.

'54 CHEVROLET, $165; Westinghouse dryer, $40. Mandell, AX 9-4158.

UTILITY CABINET, $8; bread box, $2; automatic perculator, $5; 3-pc. wooden bookcase set, $8; grill on wheels, $1. Smith, 298-0557.

POLARAIRE CAR COOLER, 12 volt, used one summer, $25. Hudson, 299-1208.

LAWN MOWER, rotary, gasoline powered, Briggs & Strattton engine, make offer. Reynolds, 299-5157.

MOVIE PROJECTOR, Holiday 8mm and 8mm Brownie movie camera w/36" screen and light movie exposure guide. Wilhelm, 268-7762.

MAYTAG WASHER, $20. McCoach, 298-5960.

'62 VW SEDAN, one owner, seat belts, radio, new tires. Pollett, 298-6534.

FEMALE BASSETT, 7 months old, AKC registered, $40. Law, 298-0287.

CRANK PHONE; fans; screen door; rural mail box; bed spreads; pull-down chandelier; TV-stand; rug; mixer. Tarbell, AL 6-1322.

'61 FALCON station wagon, many extras, below book, $1095. Carlson, 299-0258.

FREE PUPPIES, 2 male, 2 female. Arasim, 298-8431.

TENT, umbrella 9 x 11, extra heavy canvas, floor poles, stakes, $20; 2 sleeping bags w/ air mattresses, $5 ea. Zimmerman, 255-7955.

'61 LAMBRETTA 150LI, windshield, buddy seat, spare tire, helmet. Neau, 265-0101.

'57 BUICK 4-dr. HT, automatic transmission, R&H, $260. Smith, 299-7244.

KELVINATOR electric range, $150. Bernard, 265-4150.

3-BDR. ROBERSON, landscaped, screened patio, near Collet Park school, selling at FHA appraisal. Todd, 2012 Muriel NE, 299-4095 after 6.

BEDROOM SET, blond oak, bed, dresser/mirror, 2 end tables, $100. Peet, 256-7394.

'40 LIMOUSINE CADILLAC, 9 passenger, $400; '47 Cadillac. Gibson, 855-4472.

'59 DODGE CORONET, std. trans., rebuilt eng., $650; 21" Motorola console, $40; GE 21" maple table model, new pix. $45. Brooks, 4019 Comanche NE.

4-BDR., large den w/fireplace, $16,700 VA, no down, wool carpeting throughout, dishwasher, a/c, color-rock exterior, landscaped, 1208 Betts St. NE, Pepper. 299-2459.

WROUGHT IRON RAILING, 35' long and approximately 30" high. Salazar, AL 5-1301.

CORGI PUPS, $35. Tucker, 282-3204.

PORTABLE WHITE rotary sewing machine w/ buttonholer and other attachments, extra bobbins and needles, $25. Flury, 299-7473.

CENTRIFUGAL PUMP, 1½" inlet x 1¼" outlet, ¾HP motor, $40; 1 KW, 115 volt AC electric plant, stationary, $50. Toya, 898-0491, 125 El Pueblo Rd. NW.

VW BAGGAGE RACK, used one time. Madole, 521 Florida SE.

FORD TRACTOR model 8N w/Wagner loader and 14" plows, $995. Patterson, Rt. 1, Box 1303A Albuquerque.

'59 FIAT-500, 40 mpg., all new clutch assembly, $250. Morrison, 247-8524.

PORTABLE EVAPORATIVE ROOM COOLER, Travel-Aire, floor model, 2-speed blower, thermostat, new last year. Schulze, 242-8388.

CAMPING TRAILER—We started, you finish, 10-ft., camping style. Make offer. Comstock, 915 Monroe SE, 255-6267.

WANTED

FURNISHED HOUSE or apartment for visiting professor and wife, four children, youngest 9 yrs. old, from Aug. 2 to Aug. 22. Claassen, 264-4674.

WILL SOMEONE returning by air from Washington D.C. late August accompany my son, age 11, airport to airport? MacCallum, AL 5-6363.

120 BASE ACCORDION. Navalisi, 6251 Edith Blvd. NE, 344-0598 after 5.

TEAMS OR INDIVIDUALS for Satellite Bowling League, this fall Eucan Bowl, Tuesdays, 6:30 p.m. Clark, 299-6410.

BOAT TRAILER, 600 lb. capacity. Eaton, 298-3865.

HARP, regardless of condititon, broken or otherwise. Becker, 299-2539.

TO RENT PICKUP CAMPER in late July and/or early August. Have permanent trailer at Conchas available during rental period. Westman, AL 5-6048.

HOME for male Siamese cat without papers. Roth, CH 3-7049.

TO RENT, sublet, or share bachelor apt. for month of August only. Mabie, AX 8-1535.

RIDE from Cagua NE, one street off San Pedro to Bldg. 880. Wagner, 268-7868.

RIDE to bldg. 880 from corner of Lomas and Palomas NE, between San Mateo and San Pedro. Swayze, 268-5222.

JOIN carpool from vicinity of Morris and Commanche NE to bldg. 800. Hinman, 298-1027.

RIDE from Yucca NW to bldg. 838. Hellwig, 242-8393.

HOME for 2 young tom cats. Tatum, 877-0997.

SCOUTMASTER FOR established Boy Scout Troop 182, sponsored by St. Lukes Lutheran Church. Petersen, 299-3941.

NEW AIR CONDITIONED CAR, with male driver, wants to join car pool from gate 7 or 10 to vicinity of Snow Heights Blvd. and Moon NE. Smith, 299-1264.

2-yr-old boy to care for 5 days a week, vicinity of Snow Hts. and Morris, Longerot, 299-0879.

TRIUMPH TR-4 service manual. Magnuson. 255-3921.

FOR RENT

FURNISHED APT., large living room, 1 bdr. near school and bus. Black, 344-1016.

2-BDR. UNFURNISHED HOUSE, w/w carpet, attached garage, adults only, located 706 Delmar NW. Valdez, 247-9066.

LARGE ADOBE HOME on ranch, trees, garage, conveniences, 3 miles North Placitas, consider separate small orchard operation contract. Illing, 299-7378.

QUITE, NEW, 2-bdr. apt, carpet drapes, private patio, electric kitchen, near new First National Bank Bldg. Hughes, 255-4628.

2-BDR. HOUSE, nice, clean, walled yard, convenient location, 1610 Anderson Pl. SE. Little, 268-7742.

2-RM. FURNISHED APT., water and garbage paid, adults only. 1003 Forester NW. Temple, CH 2-9092.

SPRAWLED ON A HILLSIDE in the Sandia Mountains is the 2,400-sq.-ft. house built by Garvis Chandler (4224). The house took six years of spare time work to construct.

It Took Six Years To Build This Dream House

High on a hillside in the Sandia Mountains, Garvis Chandler (4224) built his dream house, He had built his own house before—he was a carpenter's helper at the age of 14—but this one was going to be big—2400 sq. ft. plus another 800 sq. ft. of enclosed patio. Secondly, the materials were going to be the best. No more scrimping or cutting corners.

Early this summer, the house was complete. It took six years. With the exception of the foundation grading, the roofing, and part of the electrical work, Garvis did the entire construction job himself. He did receive valuable help occasionally from his co-workers in the Welding Shops.

The house has three bedrooms, three baths, three fireplaces, kitchen, den, living room and large utility room. In addition to the patio, there is a double garage and workshop. The site is terraced. Sidewalks and retaining walls have been constructed.

Only landscaping remains to be done.

It was a hard six years with every spare minute going into building of the house.

The job that took the longest time was the cabinetwork. The kitchen features two rows of spacious mahogany cabinets finished to a high glaze with three coats of varnish. Each coat was sanded before the next one was applied.

All kitchen appliances are the built-in type. Garvis did the installation and built the surrounding cabinets and counters. The cabinetwork extends to the bathrooms and the utility room. There are also several shelves and bookcases in other rooms of the house.

Basic construction of the house is wood frame with redwood siding. Finishing details reveal a painstaking craftsmanship. A large polished wood beam extends the length of the livingroom. It is also sanded and finished to a high gloss.

Garvis' wife, Yolanda, furnished the interior in sophisticated contemporary pieces.

A native Brazilian, she used several exotic South American touches in the decor such as a framed panel of iridescent blue butterflies.

Now that the job is finished, Garvis plans to take it easy and enjoy the surroundings. He will work on the landscaping, but that's "a minor project," he says.

In comparison with the monumental job he's just finished, landscaping would be just a small chore.

ENCLOSED PATIO, containing some 800 sq. ft., reveals the careful planning and attention to finishing details that is characteristic of the Chandler house. Garvis stands by one of three fireplaces in the house.

AEC Announces Building Plans for Sandia Laboratory

The Atomic Energy Commission has invited bids for a building modification project at Sandia Laboratory and has announced the apparent low bidder on two other projects.

Bids were invited last week to modify Bldg. 880 in preparation for installation of Sandia's new CDC 3600 computer which will replace the present CDC 1604 computer. The project includes removal of doorways, installation of metal raised flooring, panel boards, feeders, outlets and other miscellaneous electrical items, and modifications to the heating and cooling systems. The work is to be completed within 50 days after the contractor is asked to proceed.

John C. Snowdon (4543) is the Plant Engineering Department project engineer.

G. W. Stuckman is the apparent low bidder at $40,366 for modification work to Bldg. 9930 in Area Y, an Explosive Devices Facility. The modification includes removal of existing concrete stairs and retaining wall and installation of a new reinforced concrete retaining wall and a reinforced concrete addition of some 440 sq. ft. New steel stairs will also be installed.

Ken Harper (4543) is the Plant Engineering Department project engineer. The facility is used by personnel of Special Devices Department 1310. Department 1310 also will occupy Bldg. 913 in Area II after modifications.

The AEC has announced that the Jack B. Henderson Construction Company is the apparent low bidder at $39,708 to modify Bldg. 913. The project includes construction of reinforced masonry partitions, installation of asphalt flooring, caulking and painting, modifications of electrical power distribution systems, and installation of heating and air conditioning equipment. The work is to be completed within 60 days after the contractor receives notice to proceed. A. W. Dennis (4543) is the Plant Engineering Department project engineer.

Sandia Speakers

Following is a list of speakers, titles, and places of presentation for recent talks by members of Sandia Corporation.

C. J. McGarr (4600), "Management Science in an Inventory Control System," New Mexico Business and Manufacturers' Association, July 14, Albuquerque.

C. E. Abraham (5422), "Mathematicians in Industry," Conference on the Advanced Placement Program in Mathematics, June 26, Norman, Okla.

Value Engineering

What is this "Value Engineering" which cuts costs without compromising quality, reliability, maintainability or safety?

"The objective of the concepts and techniques of Value Engineering is to make possible a degree of effectiveness in identifying and removing unnecessary costs . . .
—L. D. Miles, Techniques of Value Analysis and Engineering

In the overall sense, there is nothing new about searching for value. We do it each day in our purchase of household goods, such as food, clothing, and furniture. What is new is a unique process whereby the greatest value can be recognized and achieved—value based on fulfilling our needs at the least cost. The process is called Value Engineering—a process that, through the specific organization of independent techniques and considerations, some old, some new, enables us to achieve the greatest value. This value is measured in terms of providing a function at the least cost without compromise of quality, reliability, maintainability, or safety. Value can be defined as the lowest price at which something performs a given function reliably; it's a quality almost every housewife looks for when she's shopping, but one which sometimes eludes the design engineer.

Put as simply as possible, the Value Engineer seeks ways to make a product more valuable. To do so, he asks himself the following questions about the idea or item he's examining: 1. What is it? 2. What is its function? 3. What does it cost now? 4. What else would do the job? 5. What would that cost? Carrying the step-taking a step further, the value engineer moves through a series of "phases" in his search for value: an "information phase" in which he gathers facts and defines the function of the object at hand, a "speculation phase" in which he lists ideas about making improvements in the value of the item, an "analysis phase" in which he refines and evaluates all of his ideas, a "development phase" in which he determines just how practical his ideas are from an industrial point of view, and a "report phase" in which he reports his best ideas to management and to the people who will be making the changes in the item.

Value Engineering techniques work, often dramatically. Consider an example. A design for a Navy landing craft, provided two copper-nickel trapezoidal fuel tanks, each holding 90 gallons of fuel, and costing a total of $520. The Value Engineer recognized that the function of one of these tanks could be achieved by two standard steel drums, sprayed inside with plastic and costing $15 each. The total cost of the fuel tanks if the drums were used would be reduced from $520 to $60 per boat. An objection was raised at this point; the drums would not last as long as the highly durable copper-nickel tanks. It was overcome with the observation that the landing craft themselves were made of plywood and had a life expectancy of eight years. The plastic-lined steel fuel tanks would outlast the boats.

This example illustrates an important aspect of Value Engineering. The Value Engineer is trained to think in terms of the **function** of an item, rather than just the cost of the item. It's fallacious to think of Value Engineering only as another cost reduction program. As a matter of fact, the Value Engineer sometimes finds that, to increase the value of an item, the cost of the item must be increased rather than decreased. The higher-priced item may perform a function more reliably than the original, or perform more required functions.

Confusing? Just remember that we tend to confuse the meanings of those two words, **value** and **cost.** Sometimes, the value of an item comes at a very high cost, high in terms of money, in terms of time, and in terms of manpower. Sometimes, too, an item's value cannot be improved upon by Value Engineering.

Value Engineering is at work at Sandia. An extensive training program has been underway for several months. The Sandia trainees in VE use items of Sandia hardware in their studies—studies which have already resulted in suggestions for changes in the design of hardware that might save considerable money. These suggestions for changes have been sent to the development organizations for consideration.

Graduates of the VE training program are returning the principles of Value Engineering to their organizations, where presumably, they're being put to work in new designs. Such before-the-fact Value Engineering—looking for ways to improve a design while it's still a design—is more effective than after-the-fact Value Engineering, which consists of looking for improvements after an item is in production. In work of the type being done at Sandia, it's especially important that VE techniques be put to work in the earliest stages of design and development.

We are living in an age of heavy expenses, and the expense of defending ourselves is gigantic. We at Sandia are constantly faced with the fact that the value of our product lies in its reliability, effectiveness, and safety. We can't ignore the fact that we should expect to get a dollar's value for every dollar spent on our product. We're constantly seeking for ways of improving the value of our product. Value Engineering is one important means of making such improvement.

Patent Granted AEC in Name of Two Sandians

A patent for a capacitor with an internal gas barrier has been assigned to the Atomic Energy Commission in the names of Elmer L. Ford (1432) and Ralph E. Hampy (1433).

As set forth in the specification, the invention "relates generally to capacitor devices of the sort which employ a container enclosing a liquid-immersed capacitor element and more particularly to means for maintaining or isolating a quantity of gas in a definite and desired location within the containers of such capacitor devices."

The patent is number 3,138,652.

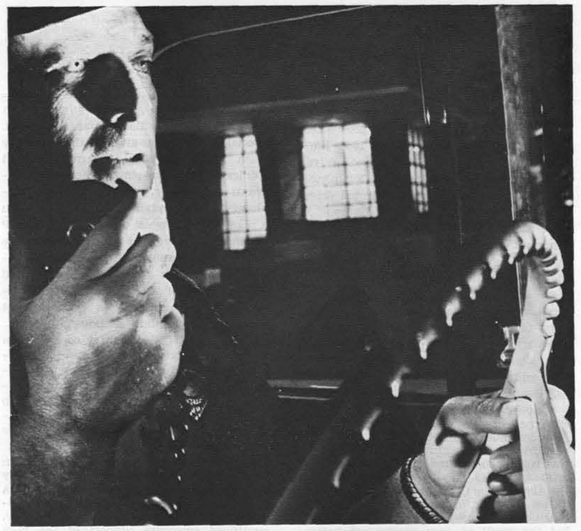
Sandia's Safety Scoreboard

Sandia Laboratory:
35 DAYS
1,225,000 MAN HOURS
WITHOUT A
DISABLING INJURY

Livermore Laboratory:
41 DAYS
201,000 MAN HOURS
WITHOUT A
DISABLING INJURY

Night People

Sandia's Night-Side Men and Women Find a Big Measure Of Pleasure in Working While Other Employees Sleep



PATROLLING A QUIET LABORATORY, Eugene Cox reports to headquarters by radio. Patrol Division 3242 provides around-the-clock security at Sandia Laboratory. In the background are the lights in Bldg. 800 where janitors ready the facilities for the next day's activity.

CHEMICALS ARE ADDED and closely controlled in the Livermore Laboratory water system by James A. "Smoky" Culver (8222), a veteran of nearly 17 years service with Sandia Corporation. Smoky is a Maintenance Division fireman in the steam plant and during his evening shift checks the balance of chemicals in water used for certain continuous Laboratory operations.

KEN BIXLER, left, and Pauline Frey help operate the 1604 computer during the second shift. Programs are checked during the day shift, scheduled for production at night.

Night people of Sandia Corporation are different from day people. They can sleep late in the mornings. Most of them enjoy night work and wouldn't have it any other way.

"You can get more work done," says Carter E. Howard (7611-1), who supervises second shift operations in 7090 and 1604 computer areas. "There are no phone calls, no interruptions. Even though the work load gets heavy, there doesn't seem to be any pressure. We know we can get it done."

Data Center and Operations Department 7610, Security Standards and Operations Department 3240, and Plant Maintenance Department 4510 are the only Sandia Laboratory organizations which regularly have 24-hour operations.

Patrol Division 3242 maintains around-the-clock security. The computers are operated three shifts a day for maximum output. Some Plant Mainenance jobs can be better performed at night. Electricians and pipefitters maintain the plant utility services while janitors keep the laboratory clean. Steam plant operators need to be on hand at all times.

One other job requires around-the-clock operation—the heating and air conditioning monitor and control console in Bldg. 887. With this equipment, the operator can scan more than 1000 points throughout the Tech Area and see if all is well. A red light flashes on the console if any trouble develops in any major building heating or air conditioning equipment. The console operator keeps in touch by radio with a maintenance man working in the area who takes care of any malfunctions.

H. M. Rowe, supervisor of Janitor Service Section 4574-1, believes that there are some jobs that can be done only at night. "Imagine trying to move furniture and scrub and wax these floors in the daytime," he says. "At night we can move everything out of an area and really clean. We don't bother anybody and they don't bother us."

Mr. Rowe reports that the two scrubbing and waxing crews are able to cover the entire Tech Area every six months. "We use a long lasting wax. Periodic buffing by the building janitors (who also work nights) keeps it shining."

The thing that Robert Chavez, a member of the scrubbing crew, likes about the night shift is the fishing. "It's like a three day weekend every week," he says. "I can leave early Saturday morning and not have to report to work until Monday afternoon. It's great."

At the close of the regular shift at Livermore Laboratory, the janitors move into the buildings and perform the endless cleanup that follows any active day. They work until midnight to restore offices, laboratories, rest rooms, and hallways for the coming day.

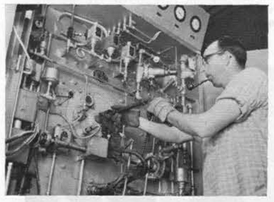
At the steam plant, the pulse of activity never stops. Every laboratory building is effectively kept operational around the clock and the steam plant reduces only slightly its supply of steam and water to dependent buildings. Temperature control and pressure are critical, and continuing general maintenance is the order of the day, or night, in this case.

From the steam plant come the men who service every major piece of machinery throughout the Laboratory. Lathes, mills, drill presses, motors, or whatever, this equipment is maintained and checked on a rigid schedule during the evening shift so that the day's operations are not interrupted.

Here, again, the night people of Livermore wouldn't have it any other way. They enjoy the pace of night operations and the feeling of accomplishment.

"The best of two possible worlds," one man said. "We spend the day with our families, keep up with the yard work, have long lazy weekends, and yet still put in a good night's work."

The **Lab News** did find one unhappy employee. A bachelor, the man said, "My girl works days; I work nights. How am I going to do any courting in a situation like this?"

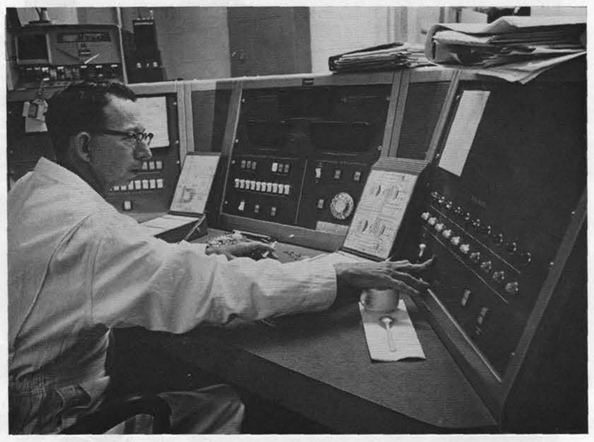


CHANGING FROM GAS TO OIL in the steam plant boiler may be required with as little as 10 minutes warning at any time. Rudy Grund (8222), steam plant operator, is responsible for this change and must be prepared at all times to change fuels without interrupting operations. Rudy is active continuously throughout the evening shift checking flow rates, water pressure levels, temperatures, and the myriad automatic operations sustained for Laboratory functions.

SCRUBBING AND WAXING crew works during the dark hours. Roy Furrow, left, and Robert Chavez (both 4574) move furniture prior to floor work.

A MAINTENANCE LOG is kept by Ed Tibbett, left, and Jim Culver (both 8222) after checking and servicing equipment at Livermore Laboratory. During the night, a variation in water temperature of more than 0.1°F. can disrupt some of the test laboratories.

WITH THE TOUCH OF A FINGERTIP, James C. Vincent (4511) can check the operation of heating and air conditioning equipment in any major building at Sandia Laboratory. The monitor and control console is manned around the clock. Operator can contact maintenance man in the area by radio to take care of any malfunction in buildings.



IBM 7090 COMPUTER is operated around the clock. Carter E. Howard, left, talking with Hy Walker, console operator, is in charge of second shift operations.

Summer—And All's Not Well

Summer is here and after the short days of the winter months, it's a real blessing.

But it can also be a time of occasional discomfort. Here are some critters, plants, and other things you may encounter this summer which deserve your respect and your caution.

Bees, Wasps, Hornets

The stings of bees, wasps, and hornets can be extremely dangerous to people with a history of hay fever, asthma, or other allergy. And for those who don't have such allergies, their stings can be painful and unpleasant.

The stinger produces redness and swelling. If it's visible in the wound, gently scrape it out with a fingernail or knife blade. ***Don't*** pull it out with tweezers or your fingers; the end of the stinger you squeeze contains a tiny poison sac which may release more poison through the sting.

Apply ice to the area to reduce pain and swelling. If you know you're allergic to the poison; or receive multiple stings; or experience severe headache, nausea, or dizziness after a sting; call a doctor at once.

Eight-Legged Beasties

Of the many species of scorpions living in the United States, only two potentially deadly species are known, and their chief danger is to children and the aged. Scorpions like quiet, dark places; they're often seen around piles of lumber or firewood. They prefer to run away, but will sting if provoked.

Treatment of a scorpion sting is effective if prompt. If the sting is on an arm or leg, place a tourniquet above the sting; then place a pack of crushed ice wrapped in thin cloth on an area of about 12 inches over and around the sting. After the ice has been on the sting for five minutes, remove the tourniquet. If the sting is on a hand or foot, submerge it in a half-and-half mixture of crushed ice and water.

In either case, remove the part from the ice for one minute out of every ten for relief, and discontinue the treatment after two hours. And call your doctor, especially if the victim is a child or aged person, or if the sting is on the back of the neck or along the spine.

Most scorpions are relatively harmless. The black widow spider, on the other hand, can be deadly. But fatal cases are rare; they usually involve children or the aged.

Symptoms include local swelling; immediate and severe muscular pain and cramping; profuse perspiration; nausea; and difficulty in breathing. These symptoms may last for as long as five days.

In case of a bite, the ice-pack treatment outlined above may help to localize the poison. In any case, a physician's help should be sought immediately.

Snakes

There are four kinds of poisonous snakes in the U. S.: the rattlesnake, found throughout the country; the copperhead, found in the East and the South; the water moccasin, found in the South and South-central U. S.; and the coral snake, found in the Southwest and Southeast.

The first three wound by striking and penetrating the skin of the victim with grooved fangs which carry the poison. The coral snake is banded with yellow, red, and black, with the yellow bands bordering the black. The coral snake wounds by chewing with tiny teeth and working the poison into the wound thus created.

A number of snake bite kits are available; they're inexpensive and effective for treating a bite before the doctor arrives. The smallest of them is little larger than a pocket knife.

The victim of snake bite requires a doctor's care. If he can be moved quietly to an automobile for a quick trip to the doctor, so much the better. Otherwise, the doctor should be brought to him. **Don't** give the victim alcohol; it hastens the spread of venom through the victim's circulatory system.

Poisonous Plants

One or more species of poison ivy, poison oak, or poison sumac grow in every part of the U. S. If you're planning an outing, it's a wise precaution to have someone familiar with the plants point them out to you.

Poison ivy, which usually grows as a vine or low shrub, is characterized by a leaf divided into three leaflets. It grows throughout the U. S. except the extreme West.

Poison oak (oakleaf poison ivy) also has three leaflets, each shaped like an oak leaf. It grows as a low shrub or upright bush.

Poison sumac has leaves divided into from 7 to 13 leaflets, with a single leaflet at the end of the midrib. It appears as a woody shrub or small tree with hanging white berries.

These plants cause severe skin irritation on any part of the body exposed to them. If you're exposed, wash the area immediately with soap and then apply calamine lotion. It can be purchased without a prescription at the druggist's. A physician can provide special treatment for severe cases.

Old Sol

The sun's rays provide the body with vitamin D, clear the complexion, and offer the system a general toning up. But your keynote is moderation.

Never spend more than 15 minutes in the sun at first exposure. Then, increase exposure daily as long as you're tanning gradually. But if you burn, take off rings, watches, and bracelets (burns swell), and take aspirin for relief of pain. Before you begin treating yourself, however, call your doctor; he may prefer to recommend more specific treatment.

It's especially important to guard the sensitive skin of small children from sunburn. Remember, too, that you can be badly burned even when the sky is overcast.

Balms and Elixers

Commercial suntan lotions, calamine lotion, insect repellents, and other products can offer you protection and remedy. But remember that your doctor should be consulted when you've been stung, bitten, poisoned, or burned. And it's a good idea to keep aware of other safety precautions to be taken now that you'll be spending more time outdoors. A little knowledge will arm you against a lot of trouble.

Deaths . . .

W. H. Reese, supervisor of Assembly Measurements Section 4232-2, died July 1 after a long illness. He was 53.

Mr. Reese had been a resident of Albuquerque 17 years and last month observed his 15-year service anniversary with Sandia Corporation.

Survivors include his widow, Margaret (3321); sons, Ted and Fred, both of Albuquerque; and his parents in Independence, Mo.

. . .

Cyril Brady, a Sandia employee for 13 years, died suddenly at his home on July 8. He was 61.

Mr. Brady was a record clerk in Engineering and Research Support Division II, 2642.

Survivors include daughters in Albuquerque, Arkansas, and Idaho; a son in El Paso; and a sister in Canada.

Wanted: One Scoutmaster

Boy Scout Troop 182, sponsored by St. Luke's Lutheran Church (NE Heights), needs a Scoutmaster. Troop 182 is an established group of 35 boys and is supported by a hard-working committee. They meet once a week and have one weekend outing per month. Some of the summer activities planned are a three or four-day "pack-in trek," a water camp at Conchas Lake, and a week's summer camp at Camp Zia.

Anyone interested should contact I. K. Petersen (7325), home tel. 299-3941.

Sympathy

To Don Hesselbarth (2624) for the death of his father-in-law in Albuquerque, June 18.

To J. L. Landrum (3416/2500) for the death of his father on July 7.